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ABSTRACT

This pilot study investigated the experiences of preservice teachers enrolled in a required technology course as they mentored practicing educators about technology. Data were collected over the course of a semester through e-mail. A qualitative analysis revealed the following themes: reasons for mentoring, what happened, course resources, thinking about it, useful experiences, and mentor learning. Findings indicate that mentoring may reinforce course learning. In addition, the convenience of mentoring sessions and reflection appeared to enhance mentoring experiences. (Contains 10 references.) (Author/MES)

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PRESERVICE TECHNOLOGY MENTORING

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Abstract. This pilot study investigated the experiences of preservice teachers enrolled in a required technology course as they mentored educators about technology. Data were collected over the course of a semester through e-mail. A qualitative analysis revealed the following themes: reasons for mentoring, what happened, course resources, thinking about it, useful experiences, and mentor learning. Findings indicate that mentoring may reinforce course learning. In addition, convenience of mentoring sessions and reflection appears to enhance mentoring experiences.

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The term mentoring is derived from the Greek meaning to endure. It is the goal of teacher education programs to help train and prepare inservice teachers to become enduring preservice teachers who will not only contribute to the students learning but also continue to grow and develop as learners themselves. Mentoring in general is becoming a popular and effective model to support novice learner and expert teaching in many professional fields (Office of Research, 1993).

Traditionally, inservice teachers are mentors for preservice teachers. In the information age however, it is more likely that the new teacher will have a great understanding of technology than will the practicing teacher. Hence the concept of a mentoring project that can support teachers of different abilities and experiences in authentic and practical contexts. Many higher education and K-12 institutions have technology mentor programs in which students mentor faculty about the use of technology (Bently & Mumma, 1999). However, given the status of K-12 teachers' use of technology in the schools, it seems appropriate to consider preservice mentoring of practicing educators. Research indicates that many preservice teachers do not retain of transfer skills acquired in isolated preservice technology courses (Vagle, 1995) and mentoring provides a means of making course learning relevant to practical situations.

Mentoring builds on evidence that teachers are more likely to adopt technology when technology use comes from a perceived curricular or instructional needs and is situated in their work environment, as illustrated in the Cupertino ISD (Barnett & Nichols, 1994), SEIR-TEC (Byrom, 1997) ACCOT (Apple, 1999), and Georgia INTECH (Georgia DOE, 1999) models of technology staff development.

The US Department of Education (1998) reports that effective professional development practices must be grounded in what teachers need to know in their own teaching context and draw upon "shared concerns and strengths" (p. 41). Teachers want and need ongoing learning experiences that reflect their interests and perceived student needs to be delivered in a clear and reflective manner. These attributes apply to both inservice and preservice teachers. By allowing preservice teaches to mentor inservice teachers, co-learning will surely be inevitable. The novice teachers will learn about the nature of teaching and learning as the experienced teachers acquire technology skills and understanding, all within the workplace.

The Project

In the 1998-99 academic year, the school of education in a small private university in the Northwest piloted a preservice mentoring project for inservice teachers. All degree and certificate-seeking students were required to complete a two-hour technology course. Preservice teachers enrolled in the basic educational technology course were given an opportunity to mentor a current or future teacher (K-12 or higher education), of their choice, about technology. Twenty-six preservice teachers chose to participate. They were required to send an e-mail message to the course instructor after each session and then answer a few reflective questions at the end of their experience.

Method

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This descriptive case study (Merriam, 1998) explores patterns among the mentoring experiences of preservice teachers. Informants experienced their interactions with mentees with minimal direction from the course instructor and no direct feedback from their peers. Since this was a pilot project, there was little information and no theory from which to base possible outcomes of mentors' experiences. Although the mentors experiences were in isolation of each other, the phenomenon of mentoring evoked commonalties (Creswell, 1998).

Preservice mentors were asked to meet with their mentees until their negotiated goals had been met. They e-mailed the course instructor after each meeting to report on progress, concerns, or ask any questions. The course instructor gave encouraging feedback and occasionally asked for clarification about their experiences. Each participant met with their mentee at least three times, two mentors met seven times.

At the conclusion of the mentoring experience, preservice teachers were asked if they wanted to share more about their experience and if they had suggestions for future mentors. This allowed a degree of saturation (Lincoln & Guba, 1985) as the investigator asked ongoing questions, when necessary for clarification, and allowed informants to share as much as they chose about their experience. Informants were not required to submit evidence of their mentees learning but they were asked to describe projects, tasks, and activities. Mentees were also invited to e-mail the course instructor and indeed, several did. Products and their description, as well as feedback from mentees, provided triangulation of data. The long-term nature of the project and exchanges among instructor and mentors contribute to the validity of the study validity (Merriam, 1998).

A constant comparative data analysis allowed for timely clarifications of reported experiences. As patterns emerged from data, themes were identified and defined, as described in the following section.

Findings

Predictably, most preservice teacher messages described the mentoring goals, processes, and outcomes. However, data analysis revealed patterns of shared culture among individual experiences. These patterns include: reasons for mentoring, what happened, course resources, thinking about it, useful experiences, and mentor learning.

Reasons for Mentoring

Preservice teachers chose their mentee for various reasons, mostly out of convenience. Eight selected their mothers, all but one of whom work in K-12 education. Seven mentored teachers which whom they were placed in field observations. Six preservice teachers chose fellow students and two chose education faculty. Two mentees were grandparents and one was a middle school aged daughter. Given the freedom to choose someone connected associated with education allowed mentors some leeway and probably contributed to their successful experiences, as noted in a later theme. Too many constraints or inconveniences may facilitate procrastination or incompletion of the task.

The what and how of mentoring sessions was mostly negotiated among participants. Most mentees proposed an interest or a need that focused them on the task at hand. This helped to set a goal and prepare the mentor for their sessions. The peer group wanted to get "a head start on my media class" which is required of all certificate and degree seeking students. Inservice teachers typically had specific software or skill goals, as did the university professors. These included Power Point presentations, WWW site development, spreadsheets, databases, word processing documents, searching the Internet, and multimedia development. All of these topics were covered in the course.

What Happened

The descriptions of what happened in the sessions were clearly of two types. One group described a demonstration approach as mentors said they "showed [the mentee "how to" while others used a more hands-on approach as indicated by phrases such as "I let her" or "he then entered data." The *show-*

ers eventually noted that the learner did get to practice while the *let-ers* tended to incorporate more practice during sessions. Both groups appeared to encourage or arrange opportunities for tasks between sessions. These included such tasks as "sending e-mail messages," gathering data for spreadsheets or databases, "working on typing skills," or gathering "images off the Internet."

This variance may only reflect the medium of reporting, e-mail, and the choice of descriptive language. Teachers may say they have *shown* someone how to do something although they may have given verbal instructions rather than direct modeling. When questioned about this, the *show-ers* did acknowledge that they did model, some noting that they had a hard time "keeping their hands off of the mouse."

Course Resources

Most of the preservice teachers mentioned using course materials or teaching approaches in their mentoring. They often showed their mentee "what I did" in their own course work. They also used course "handouts" and "cheat sheets" to guide their learners. Almost all mentors commented that they "did what [the course instructor] did in class" drawing upon processes modeled for them.

The technology course design was part whole group and part individual instruction, with considerable peer mentoring during formal and outside of class meetings. The nature of their learning experiences may have facilitated the modification and use of course materials and activities.

Thinking About It

Throughout all of the messages, including those sent by the mentees, there was an abundance of reflective statements about how the mentor felt, the anticipation of both parties, and of the learner's reactions.

Both mentor and mentee expressed "excitement to learn to use the computer." Statements of this sort continued throughout the reporting of the mentoring sessions as both parties "looked forward" to the next session and many said their mentee was "excited to learn." Many mentors said that both they and their mentee are "having a good time." This may be a result of the open-ended nature of the task in which participants determine the outcomes and therefore was less stressful that if a mandated goal had been designated.

The mentors commented about their own behavior during the session as well as their concerns. These statements often included comments about the status quo such as, "things have been going well" or "this was another productive session." Three quarters of the mentors noted perceptions about their expertise or lack thereof. Many recognized their developing knowledge as one preservice teacher said she "actually knew what I was doing." Other mentors noted that they didn't go into some areas because, in the words of one preservice teacher, "I didn't know myself."

It is unclear whether or not the lack of knowing inspired further learning however this type of experience might trigger reflection about the scope of skills that will be useful in practical settings.

The mentors made also commented about their perceptions of mentees experiences. Many of the mentees were "especially interested" in specific applications which focused the sessions and probably contributed to the excitement described above. The mentors often expressed surprise that the mentee "understands what I taught" and "caught on quickly." The mentees were often "very amazed at what [they] could do" and found the sessions "very useful and not difficult." These reactions may suggest that the mentees, in general, may not have had previous opportunities to learn in one-on-one sessions or to learn specific tasks about which they wanted to learn. The generalized nature of academic learning and professional development does not often provide for individualized learning.

A few mentors described that their mentee "was confused" about a task or concept. This prompted them to "clear up the confusion" with additional explanation or modeling. These instances did not appear to detract from the overall value perceived by the participants.

Useful Experience

The mentors all noted that they and the learners felt that mentoring was useful for many reasons. Oftentimes, through interactions with their learner, mentors came to new realizations about the usefulness of technology resources. There were "obvious benefits" to basic software tools and the Internet seemed to inspire both mentor and mentee. Many mentoring sessions included a discussion about "possibilities for incorporating all of what we are going over" into the mentee's work or personal life. Mentors who taught the basics of e-mail had their mentees mail them messages, sometimes resulting in a plethora of messages and "forwarded stuff." One mentor commented that she thought her mentee "now spends all her free time e-mailing."

Part of the usefulness may have been related to the just-in-time nature of the tutoring sessions as well as learning in the learner's context, be it at home or in the workplace.

Mentor Learning

Almost all of the mentors directly discussed their own learning as an outcome of the experience. Oftentimes this was stated as a means of reinforcement to course learning. The mentoring ". . . helps me understand more what I am doing," and "tutoring has helped me learn a bit more about this class because I have to remember what we have been learning!" Most found that the experience ". . .reinforced what I knew."

Some mentors realized the limitations of they knowledge, as one preservice teacher said, "I know I still have a lot of glitches to work out." Another mentor noted that, "I can really understand this [the discomfort of learning something new] as I felt very out of my own comfort zone when I was trying to construct my HyperStudio© cards for the first time." Although not a general pattern among informants, being able to recognize a learner felt during a lesson came up in class discussions about teaching K-12 students about using computers.

Most mentors gained confidence about their own abilities as expressed in the following statement. "I found that through mentoring I learned a lot about my own capabilities and how much I was actually capable of teaching to someone. I think this project was a good way to test my own abilities." Teaching others allowed mentors to apply their learning in a new context as they transferred skills from the computer lab to authentic work and learning environments.

Mentors also learned about how to teach someone something, as illustrated in the following revelations that were common among informants.

> ". . . keep it to the basics. . ."
> " I had to use a lot of patience . . . because she did not understand things as quickly as I thought she would."
> " ... sometimes one has to draw information out of one's students."
> "I realized how difficult it is to teach someone when you do not have control of the mouse."
> " . . . go into depth on their topics of interest."
> "... you have to be prepared."
> " . . . have more time to play around."

Several learned that it was helpful to "ask what [the learner] wanted to learn instead of saying what I am going to teach" them. The learning outcomes, for the most part unanticipated by study informants, reveal insights into mentoring that have implications for preservice technology learning.

Conclusions

Is pre-inservice mentoring the answer for long term skill acquisition in preservice technology courses? It may be for some students. This was an optional activity for course participants and it may be that this was a self-selected group. One reason it may have worked well is because that the mentees were readily accessible and did not require great effort in scheduling. Students were encouraged to "double-dip"

assignments and tasks whenever possible, making connections among other courses and activities. This may have created a path of least resistance for them. The outcome was universally positive, as one student exclaimed, "In doing this I retained much more than I thought possible."

Although the findings presented here are limited in their generalizability to other settings, some broad considerations may be insightful for others when developing activities that support preservice skill acquisition.

- Provide opportunities for students to use and apply learning outside of a computer lab.
- Provide one-on-one interactions among novice and more advanced learners.
- Encourage learners to reflect upon and identify their strengths and weaknesses.
- Carefully consider materials used in class, they may be used in non-academic contexts!

There are many unanswered questions in a project such as this. How did the preservice teachers who mentored compare with those who did not? How did the motivational levels, abilities or achievement levels compare? Was the private school population, accustomed to service work, more likely to be successful in such a venture as opposed to those in larger public institution in which service work may not be enculturated? Technology mentoring may provide an opportunity to help preservice teachers make connections among course learning and practical applications that are often lacking in certification programs.

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